

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) Osteoconductive/ osteoinductive titanium/titanium alloy implant comprising:

an titanium oxide with anodic incorporation of an additional element,

said additional element being a single one element chosen from the group consisting of calcium, phosphor and sulphur, wherein,

said implant exhibits a cross-section of an osteoconductive/osteoinductive oxide layer, which consists of a double layer structure of an upper porous layer of the titanium oxide with anodic incorporation of the additional element and a lower compact barrier layer of the titanium oxide with anodic incorporation of the additional element,

wherein the lower barrier layer comprises less of said additional element than the upper porous layer.

2. (original) Implant according to claim 1, wherein the porous upper layer exhibits an open structure comprising a plurality of shallow craters.

3. (previously presented) Implant according to claim 1,
wherein the upper layer has a thickness below about 1000 nm.

4. (previously presented) Implant according to claim 1,
wherein the lower barrier layer has a thickness ranging between
about 300 nm and 2000 nm.

5. (previously presented) Implant according to claim 1,
wherein the thickness of said osteoconductive/osteoinductive
double layer-structured oxide containing an additional element is
from 300 to 3000 nm.

6. (cancelled).

7. (previously presented) Implant according to claim 1,
wherein the lower barrier layer does not include any
pores/craters or channels.

8. (previously presented) Implant according to claim 1,
wherein the upper porous layer exhibits more than about 11 %
porosity and less than about 30%.

9. (previously presented) Implant according to claim 1,
wherein the crystal structure of titanium oxide is amorphous
and/or amorphous and anatase and/or amorphous, anatase and
rutile.

10. (previously presented) Implant according to claim 1, wherein the relative concentration of the additional element incorporated into the anodic oxide layer formed on titanium/titanium alloy implants increases with the thickness of the oxide layer containing an additional element.

11. (previously presented) Implant according to claim 1, wherein the relative concentration of the additional element in of the oxide layer of said implant is between 1 % and 50 %.

12-29. (cancelled).

30. (previously presented) Titanium/titanium alloy implant comprising: an additional element anodic incorporated in an titanium oxide, obtained by anodic oxidation, wherein said additional element is a single one element chosen from the group consisting of calcium, phosphor or sulphur and that said implant exhibits a cross-section of an osteoconductive/ osteoinductive oxide layer, comprising an upper porous layer and a lower compact barrier layer.

31-32. (cancelled).

33. (previously presented) Implant according to claim 1, wherein the upper layer has a thickness in the range of 100-500 nm.

34. (previously presented) Implant according to claim 1, wherein the lower barrier layer has a thickness ranging between in the range of 600-1500 nm.

35. (previously presented) Implant according to claim 1, wherein the thickness of said osteoconductive/osteoinductive double layer-structured oxide containing an additional element is between 800 and 1500 nm.

36. (previously presented) Implant according to claim 1, wherein the upper porous layer exhibits more than about 11 % porosity and less than about 15%.

37. (previously presented) Implant according to claim 1, wherein the relative concentration of the additional element in of the oxide layer of said implant is between 1 % and 25 %.

38-42. (cancelled).

42. (new) Osteoconductive/osteoinductive titanium/titanium alloy implant comprising:

an titanium oxide with anodic incorporation of an additional element,

said additional element being a single one element chosen from the group consisting of calcium, phosphor and sulphur, wherein,

said implant exhibits a cross-section of an osteoconductive/ osteoinductive oxide layer, which consists of a double layer structure of an upper porous layer of the titanium oxide with anodic incorporation of the additional element and a lower compact barrier layer of the titanium oxide with anodic incorporation of the additional element,

wherein the lower barrier layer does not include any pores/craters or channels.

43. (new) Osteoconductive/osteoinductive titanium/titanium alloy implant comprising:

an titanium oxide with anodic incorporation of an additional element,

said additional element being a single one element chosen from the group consisting of calcium, phosphor and sulphur, wherein,

said implant exhibits a cross-section of an osteoconductive/ osteoinductive oxide layer, which consists of a double layer structure of an upper porous layer of the titanium oxide with anodic incorporation of the additional element and a lower compact barrier layer of the titanium oxide with anodic incorporation of the additional element, wherein the relative concentration of the additional element incorporated into the anodic oxide layer formed on titanium/titanium alloy implants increases with the thickness of the oxide layer containing an additional element.